

## REMARKS

This is a response to the final Office Action mailed on March 18, 2010. A request for examination ("RCE") is submitted with this response. The Director is authorized to charge \$405.00 for the RCE and any additional fees that may be required, or to credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 3712161-88 on the account statement.

Claims 13-29, 31-33, 35-41 and 44-53 are pending in this application. Claims 1-12, 30, 34 and 42-43 were previously canceled. In the Office Action, Claim 50 has been objected to and rejected under 35 U.S.C. §112; Claims 13-29, 31-33, 35-37, 44-49 and 51-53 are rejected under 35 U.S.C. §102; and Claims 38-41 are rejected under 35 U.S.C. §103. In response, Claims 13, 17, 40 and 53 have been amended, Claim 50 has been canceled without prejudice or disclaimer, and Claim 54 has been added. The amendments do not add new matter. In view of the amendments and/or for the reasons set forth below, Applicants respectfully submit that the rejections should be withdrawn and the application now passed to allowance.

Claims 17 and 40 have been amended to correct informalities.

Claim 50 has been canceled without prejudice or disclaimer thereby rendering moot the objection and rejection of Claim 50.

In the Office Action, Claims 13-29, 31-33, 35-37, 44-49 and 51-53 are rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 2003/0049474 to Su et al. ("*Su*") in view of the publication on Leino ("*Leino*"). Applicants note that reference patent number to *Su* has been erroneously identified in the remarks section at paragraph 5 of the Office Action. In contrast, Applicants respectfully traverse the rejection for at least the reasons set forth below.

Independent Claim 13 has been amended to recite, in part, a polymer mixture consisting of a molecularly dispersed mixture containing P(i) and P(j) that forms a network under heterocrystallisation, wherein  $0.1 \times DP(P(j)) < DP(P(i)) < 10 \times DP(P(j))$ . The amendment is supported in the specification, for example, at U.S. Patent Publication No. 2006/0148960, paragraph 19. In contrast, Applicants respectfully submit that the cited references fail to disclose or suggest each and every element of the present claims and the skilled artisan would have no reason to arrive at the claimed invention in view of the cited references.

The claim invention is directed to the necessary conditions relating to the structure sizes of P(i) and P(j) as well as the conditions for preparing suitable mixtures thereof so that these two polymers can crystallise jointly under heterocrystallisation where, as a result of the very short chain length, very highly crystallisable P(j) induces crystallinity in P(i) and a network is formed whose linking points are heterocrystals of P(i) and P(j) and whose connecting elements consist of chain segments of P(i). Under suitable preparation conditions, a material can be obtained from the mixture of P(i) and P(j), which compared with P(i) has a higher crystallinity, a higher modulus of elasticity, a higher yield stress, a higher breaking elongation and even a higher melting point whereas the viscosity of the melt is significantly reduced or the melt flow index ("MFI") is significantly increased and the melt can thus be processed more easily.

*Su* and *Leino* alone or in combination fail to disclose or suggest a polymer mixture consisting of a molecularly dispersed mixture containing P(i) and P(j) that forms a network under heterocrystallisation, wherein  $0.1 \times DP(P(j)) < DP(P(i)) < 10 \times DP(P(j))$  as required by independent Claim 13. Moreover, as taught by the present specification, there are advantageous synergistic effects as a result of the heterocrystallisation especially occurring if  $DP(P(i))$  is approximately comparable to  $DP(P(j))$ .

*Su* discloses an oil resistant multilayer film having a skin layer made of a blend of a crystalline wax and a non-polar polyolefin polymer. *Su*'s film can be used as packaging for oily food products, such as potato chips, wherein the film, in particular the skin layer, is able to act as an oil barrier so that a transfer of oil from the surface of the food product to the package's internal surface can be avoided. Taken the whole teaching of *Su*, the barrier function seems to be finally achieved by the crystalline wax that seems to migrate to the outside surface of the skin layer. See *Su*, paragraphs 22 and 29-30.

Even though *Su* generally mentions blends that are defined as "miscible" and "immiscible" (see *Su*, paragraphs 20 and 21), it should be acknowledged that the mobility of the crystalline wax in the surface layer seems to be THE important characteristic of *Su*'s blend. Accordingly, the formation of heterocrystallites, which inherently would prevent the desired mobility, is not disclosed or suggested by *Su*.

In addition, Claim 13 recites that the first polymer P(i) has at least one type of crystallisable sequences A having a degree of polymerization  $DP(P(i))$  of these sequences  $> 20$ .

While an ethylene-butene-propylene terpolymer according to the example of *Su* can comprise ethylene monomers, the fact that a crystalline polyethylene ("PE") wax moves to the skin layer of such a terpolymer as disclosed by *Su* shows that the PE sequences in such a terpolymer are too short, therefore rendering the terpolymer and the PE wax incompatible. If there would be any potential for heterocrystallization, the PE molecules would be fixed in heterocrystallites before reaching the skin layer of the polymer.

As further taught by *Su*, the separation of the polymers already takes place at a wax content of 6 % (see Table 1 of *Su*). According to present claims, up to 50 wt.-% of wax P(j) may be mixed into a polymer P(i) without any separation (see FIGS. 1-3) of the patent application).

The skilled artisan would also have no reason to arrive at the claimed invention in view of the cited references. *Su*'s example refers to an "ethylene-butene-propylene terpolymer", i.e., a terpolymer based on polypropylene and further comprising ethylene units. However, it is not disclosed whether the terpolymer is a block copolymer or whether the monomers are statistically distributed in the terpolymer. Accordingly, *Su*'s example is insufficient to fulfil the requirement that heterocrystallisation in fact occurs (not to mention molecular disperse mixing), which does not even seem to be desired by *Su*.

In addition, *Su*'s general teaching "miscible blends" (at paragraph 20) as a whole leads the skilled person away from heterocrystallisation and only "immiscible blends" seem to be appropriate to provide the desired barrier function of the film (the wax has to migrate to the surface). This seems to be further supported by *Su*'s Claim 3 that explicitly refers to immiscible blends.

In sum, the cited references alone or in combination fail to disclose or suggest each and every element of independent Claim 13. Moreover, the cited references fail to even recognize the advantages, unexpected benefits and/or properties of a polymer mixture consisting of a molecularly dispersed mixture containing P(i) and P(j) that forms a network under heterocrystallisation in accordance with the present claims.. Consequently, independent Claim 13, along with the claims that depend from Claim 13, are novel and non-obvious over the cited references.

Accordingly, Applicants respectfully request that the anticipation and obviousness rejections with respect to the pending claims be reconsidered and the rejections be withdrawn.

Claims 38-41 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Su* and *Leino* in further view of the publication to *Kokko*. Applicants respectfully submit that the patentability of Claim 13 as previously discussed renders moot the obviousness rejection of Claims 38-41 that depends from Claim 13. In this regard, the cited art fails to teach or suggest the elements of Claims 38-41 in combination with the novel elements of Claim 13.

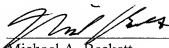
Applicants further note that dependent Claim 54 has been newly added. The new claim is fully supported in the specification, for example, at U.S. Patent Publication No. 2006/0148960, paragraph 19. Applicants respectfully submit that Claim 54 should be allowed.

For the foregoing reasons, Applicants respectfully request reconsideration of the above-identified patent application and earnestly solicit an early allowance of same. In the event there remains any impediment to allowance of the claims which could be clarified in a telephonic interview, the Examiner is respectfully requested to initiate such an interview with the undersigned.

Respectfully submitted,

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